PERSPECTIVES, KEY THEMES, AND REMAINING ISSUES

deriving from the

CALS SENIOR STRATEGY FORUM

June, 1988

Sponsored by:

DARPA-ISTO
CALS/Manufacturing Technology
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TABLE OF CONTENTS

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deriving from the
CALS Senior Strategy Forum

June, 1988

BACKGROUND

In June, 1987 the CALS Report to the Congress identified a number of key players involved in the implementation of CALS strategy. Among these were:

1. The DoD CALS Steering Group, with its working groups

2. Military department focal points for CALS implementations

3. The Industry CALS Steering Group (a coalition of industry associations) with its working groups.

4. A planned industry cooperative organization for development of a Product Data Exchange Specification (PDES)

In the fall of 1988, a number of leading industrial companies proposed the establishment of an informal industry forum to address broad acquisition and quality issues related to the strategy for the development and implementation of CALS. The forum would serve as a direct conduit for better communications between senior industry management and government officials, and as a means of rapidly assembling viewpoints and information for use in setting policy directions for CALS by the OSD. The proposal was implemented as the "CALS Senior Strategy Forum."

Initial planning meetings were held in October and November, 1987, with subsequent meetings as follows:

17 December 1987
15 January 1988
10 February 1988
5 April 1988

Forum-designated drafting and task groups also met throughout this period.

An outgrowth of this activity was the establishment of a similar industrial forum comprising broader representation from industry which is focusing upon up-front Concurrent Design and Engineering facilitated by CALS. It has been meeting since May 1988.

All meetings were arranged and managed by The Pymatuning Group, Inc. (PGI), who coordinated the agenda, and provided facilities, administrative support, rapporteur services for the Forum, and analyzed and summarized the Forum discussions.

Industry representatives participating in the CALS Forum are listed in Appendix A.

Industry representatives participating in the Concurrent Design and Engineering Forum are listed in Appendix B.

DoD and military service representatives wer invited to attend all Forum meetings as observers. DoD observers varied from meeting to meeting, but in all cases one or more representatives of the DoD CALS Office was present.

This report summarizes the perspectives, key themes, and remaining issues deriving from the CALS Forum as of June, 1988.

CALS SENIOR STRATEGY FORUM PERSPECTIVES

The CALS Senior Strategy Forum has, over several months, directly addressed some two dozen matters perceived by industry as bearing upon the progress of CALS. These have ranged from considerations of program type issues relating to integrated diagnostics, contractor-maintained data bases, and concurrent design, to acquisition policy type issues such as funding modalities for CALS implementations, use of IR&D for process development, and inputs towards a top-level OSD CALS implementation policy issuance.

Of these two dozen odd matters, the Forum's considerations have influenced or directly resulted in programmatic redirections or enhanced program activity as follows:

1. Better <u>bounding</u> of CALS, with improved definition of program priority areas.

2. Improved <u>Awareness of CALS</u>, which encompasses better understanding by industry of CALS implementation activities within the military services and DoD components, as well as by other Departments of Government, and the Congress.

3. Identification of research and development needs with respect to moving towards increased DoD reliance upon <u>contractor-maintained integrated data bases</u>.

4. Designation of matrix paths for the collection and analysis of <u>benefit data</u> relating to cost/benefit analyses for CALS implementations.

5. Confirmation of DoD Steering Group planning with respect to logistics functional areas designated for <u>priority attention for CALS implementations</u>.

6. Support of OSD's Total Quality Management Program by highlighting CALS high-payoff potentials in front-end applications for <u>Concurrent Design & Engineering</u> and by providing industry experts to support OSD's Concurrent Design program definition efforts.

7. Exploration of <u>reinforcing interrelationships</u>
   with respect to the establishment of the
   Defense Manufacturing Board by DoD.

8. Reflection of industry viewpoints relating to
   the CALS Report to the Congress for 1988, and
   a <u>CALS implementing policy letter</u> for issuance
   by the Deputy Secretary of Defense.

The Forum also systematically monitored progress toward creation of the Industry PDES Cooperative Project, and served as the principal conduit for keeping the DoD CALS Office appraised as to the current status of that effort.

The Forum clearly has fulfilled a spectrum of services extending from providing a ready conduit for the exchange of information between top officials of industry and government, to raising and developing policy issues whose resolution will influence the rate, extent, and success of CALS implementations.

CALS SENIOR STRATEGY FORUM KEY THEMES

Throughout the deliberations of the Forum, and virtually irrespective of the immediate matters under consideration, several themes repeatedly surfaced. These themes are viewed as being of central importance to, or strategically impacting upon, the DOD CALS effort. These key themes are summarized as follows:

1. Front-end applications of CALS in design and engineering has potentially much nigh payoff than aft-end applications in logistics support. While both are important, a shift of focus towards "tooth vs tail" is seen as the essential means toward attainment of long-term upgrade and supportability for future complex weapons systems.

2. Better understanding of CALS, both within and outside of DOD, is critically important to facilitate and extend CALS implementation. This understanding includes not only awareness throughout all governmental entities, and industrial levels, but also programmatic identification and bounding, so as to facilitate assignment of costs, and determination of benefits related to investments in CALS implementations. Despite the substantial and significant efforts by the OSD CALS Office and various working industry associations, there remains a substantial lack of understanding of the CALS effort throughout many elements of industry, other agencies of government, and the Congress. Extending comprehension of CALS is seen as essential to assure the breadth of support, both in and out of government, required to meet planned implementation timetables.

3. At this time the CALS effort appears to industry to be the dominant DOD strategic approach for improving the support for fielded weapons systems. The corollary is that the DOD should give early and priority attention to funding, or otherwise enabling Service and DOD agency investments for CALS. A further corollary is that a variety of funding modalities for implementing CALS, along the lines used within the Navy, should be encouraged and facilitated by appropriate departmental funding and accounting policies.

4. More appropriate metrics and phraseology are needed to better understand and define the benefits factors in cost/benefit analyses relating to CALS implementations. The primary difficulty lies in the fact that the investment costs for implementation occur early on, while the benefits, though substantial, only occur as
an accumulation downstream over the life cycle of weapons systems. Current accounting practices employed by DOD, and by industry for investment decision-making are deficient in capturing such accumulations, or in effectively crediting them as tangible offsets against the immediate expenditure requirements of new or extended implementations.

5. The primary values to DOD deriving from the introduction of CALS-based operations lies not in the savings accruing to the direct function to which it applies, but rather is to be found in the overall improvement of operations deriving from the synergism of rapid interactions which are made possible through CALS implementations. Besides leading to paperless operations, it yields more rationalized operations directly responsive to weapons systems needs.

6. A top-level DOD CALS implementation policy guidance, which would direct the incorporation of CALS standards and specifications into appropriate RFP and contractual language for future weapons systems procurements, would mark a watershed point for the program. Such a guidance would serve to catalyze industry towards broader and more timely CALS applications in response to defense requirements.

CALS SENIOR STRATEGY FORUM REMAINING ISSUES

A number of issues surfaced during the deliberations of the Forum which, while not immediately addressed, were nonetheless noted as of great importance, and meriting further detailed attention. In some instances (e.g., security) preliminary coordination with related activities and organizations was initiated; in other instances, the Forum anticipates consideration at future meetings.

Included among such issues are the following:

1. Security and integrity of CALS technical data bases. Vulnerabilities to fraud, industrial espionage, tampering and other system security threats require identification. Acceptable levels of risk must be determined by both industrial contractors and DOD, and appropriate security and protection policies developed to match acceptable levels of risk.

2. Concerns relating to preservation of proprietary data rights, privacy, and access control for data maintained in, entering, or exiting "paperless" CALS data bases. Clearer determination is needed as to what measures must be incorporated into CALS implementations, either technically or contractually, to accommodate industry concerns.

3. Clearer understanding is needed regarding means to facilitate subtier contracting for weapons systems components and supplies for which technical data exist only in digital form, yet for which current government policies require "broadest equitability of access to bid."

4. Need for improved technology transfer and technology insertion mechanism between government and industry, and exploration of how such transfer can be enhanced through specific CALS implementations.

5. Improved use of existing or proposed statutory authorities to assist in advancing the CALS effort by both industry and DOD.

6.   Reconciliation of inconsistencies relating to foreign sourcing or off-shore procurements by both industry and government in the context of a CALS digital-data-based weapon system design, procurement, operation, and support environment in the U. S.

In addition to the above, the DOD Industrial Concurrent Design Strategy Forum has identified issues related to the following areas, where current acquisition policies or procedures appear to inhibit extension of concurrent design processes:

1.   Schedule aspects of acquisition steps
2.   R&D funding
3.   Contract matters
4.   Non-consistency of DOD postures
5.   Acquisition funding profiles
6.   Incentives/rewards for adding value through concurrent design

Specific matters deemed important for immediate attention are presented in Appendix E.

APPENDIX A

List of Industry Participants -
CALS Senior Strategy Forum and Cost/Benefit
Working Group

APPENDIX A

List of Industry Participants

CALS Senior Strategy Forum and
Cost/Benefit Working Group

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Robert I. Winner, Deputy Director
Computer & Software Engineering Division
Institute for Defense Analyses
Alexandria, VA

APPENDIX B

List of Industry Participants -

DOD Industry Concurrent Design Strategy Forum

APPENDIX B

List of Industry Participants

DOD Industrial Concurrent Design Strategy Forum

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APPENDIX C

Meeting Summaries for 29 October and

10 November 1987

APPENDIX C

SUMMARY OF KEY POINTS AND PERCEPTIONS FROM THE
29 OCTOBER 1987 MEETING
of the
CALS SENIOR STRATEGY FORUM

● The forum is seen as a means to facilitate
interactions at the corporate decision levels in
industry, as well as in Government.

● The forum is seen as a means of addressing policy
issues arising in connection with CALS
implementations, whose resolution involves decision
factors broader than CALS technology, per se.

● Integrated Diagnostics, which uses the capabilities
that CALS provides, invokes concepts which seem
opposite to prevailing procurement policies;
specifically, it trends away from "unbundled"
acquisition concepts, and towards "total system"
procurement.

● Reliability, and fault tolerant design, especially
for non-electronic elements, are perceived by
numerous participants as more critical than
diagnostics. The point was made, however, that a
large percentage of fielded systems for the next
decade could benefit from diagnostics which would
reduce the "logistics tail" for such systems.

● "Maturation" is seen as important to Integrated
Diagnostics (ID) with the concept of pre-planned
"bloc" updates viewed as a practical means for
achieving such ID maturity.

● There is a great need for increasing awareness of
CALS at front-office levels in industry, the
Services, Congress, GAO, etc.

    --CALS needs an Awareness Program (Marketing Plan)

    --CALS needs to be presented in terms which are
      significant to the target audience

    --Logistics and acquisition boundaries must be
      transcended

- There is a great need for cost-benefit information on CALS. CEO's want to know the payoff in terms of ROI. The formation of the industry PDES Cooperative Project provides an ongoing example of successfully addressing senior corporate management levels in terms of factors they see as important and can comprehend, which might well be emulated for CALS more broadly.

- The benefit side of CALS needs additional attention for understandability, especially regarding what is achievable in the near term to help offset the needed up-front investments for CALS.

- It may be useful for the Forum to hear directly from industries who have already solved their software approaches, such as Ford. It might also be useful for the Forum to hear directly from key program managers as to their perception of needs.

- There is a need to provide, for industry, a management perspective for the CALS Core package. In particular, there is a need to determine whether the Core is seen as sufficiently robust to facilitate smooth transitions to CALS operations.

- There is a need for industry to gain a better understanding of how the CALS programs of the three Services tie together. In general, industry sees separate nodes within each Service, but does not yet perceive a unified approach. Also, there is substantial industry concern regarding the degree of commitment to CALS beyond the period of this Administration.

- It was agreed that the Forum could play a major role in extending CALS awareness, and in guiding the development of "suitable coherent stories" to this end. In particular, it was agreed that Forum participants should work toward providing specific cost/benefit examples for this purpose.

- It was agreed that the next meeting (10 November 1987) should look to how best to structure the Forum, its objectives, and its deliverables.

- The Pymatuning Group, Inc. offered to serve as the recipient for any additional comments which might be provided by the participants.

SUMMARY OF KEY POINTS AND AGREED UPON ACTIONS

from the

10 NOVEMBER 1987 MEETING OF THE SENIOR STRATEGY FORUM

- There is a strong sense that the principal point of differentiation by which the Forum can uniquely contribute to DOD efforts lies with the Forum's ability to address strategic approaches to weapons systems acquisition and logistics activities.

- The perceived need is to address the broad issues towards which CALS is a means. Because CALS currently is seen as the dominant strategic approach within DOD for improving weapons systems support, it is appropriate that the CALS program be a primary focus of attention for the Forum.

- It was noted that a wide variety of organizational formats have proved useful as a means for factoring the experience, viewpoints, and judgments of industry into the government's planning and decision-making processes, (e.g., SDIO, Critical Technologies, VHSIC, DSB, etc.) and that the ability to be useful is the determinant of effectiveness. It was the sense that the Form should continue for the near term at least, on the informal basis already in place. It was also the sense that the Forum initially should function on the basis of action by its members and their resources directly, rather than through a structure of subcommittees. The requisite time commitments of Forum members was specifically considered in this regard, even to the possibility of three-to-four day "focused" study sessions as may occasionally be appropriate, and, by and large, was determined to be achievable.

- There was general agreement that an immediate primary objective is to use the program already given priority by Congress and OSD to achieve the benefits potentially made possible through CALS.

- Substantial progress towards establishment of the industry PDES Cooperative Project (PCP) was reported by Mr. Denien. In addition, potential roles of the Forum, vis-a-vis the PCP, were put forward as encompassing assistance in connection with:

  A. Purpose and scope determination
  B. Related programs exchanges
  C. Monitoring of government interest
  D. Publicizing effectiveness
  E. Marketing the approach

- The Forum received a presentation by Mr. Dick Powell, Co-chairman of the DOD-Industry Working Group on CALS Cost Benefits, regarding CALS benefit analysis activities being initiated under the auspices of the NSIA CALS Industry Steering Committee. It was emphasized that CALS needs a better definition in order to be able to measure the "value-added", and that many anticipated benefits resulting from integration made possible through CALS are difficult to quantify. It was pointed out that a "strategic" context is an imperative to validating CALS benefits. It was noted that the Institute for Cost Analysis is contributing to the NSIA effort.

- Consideration of the CALS cost-benefit effort by the Forum suggested the emphasis be placed upon the determination of benefits in two distinct contexts, namely:

  A. Industry productivity and
  B. DOD force effectiveness

  The Forum also noted that the PDES development might itself be a candidate topic against which to assess costs and benefits and one for which data exists and can be developed.

- The Forum noted that the Logistics 2010 study getting underway appears highly relevant to the CALS cost/benefit activity. It was the sense that an early briefing on the study at a future meeting could be useful.

- In furtherance of coming to grips with the definitional and cost/benefit aspects of CALS, the OSD representative indicated an attempt would be made to have the services more clearly "bound" the various current CALS projects, and that additional staff would be assigned to address the cost/benefit issues. He also requested the industry representatives to focus on industrial productivity aspects, and on better ways to tie into manufacturing productivity activities.

- In the context of the discussion of procurement and acquisition processes, as tney may impact upon the ability to realize the longer term CALS benefits, the Forum noted the need for industry to clearly put forward what it wants so as to have this properly factored into the contractual arrangements. By way of example, it was noted that some analyses done under the ManTech program have suggested mechanisms for "sharing savings", and that treatment of investment costs, or the ability to capitalize certain "conversion expenses" might help assure achieving those benefits.

- The Forum agreed that the following issues merit immediate attention, and that brief concept papers should be prepared with respect to each:

  A. Contractor-maintained Integrated Data Bases

  B. CALS priorities, to include improved definition of "What is CALS?", and funding considerations.

  C. CALS cost/benefit analysis (To be done with, and through, ongoing activities).

  The concept papers are viewed as brief, two-page "Action Plan" proposals to include:

  --A brief paragraph expanding the topic and related issues.

  --Suggestions regarding the persons/organizations who need to be made more fully aware of these issues.

  --Suggestions regarding the best processes to set up and carry out that awareness effort.

--Proposed schedules.

- Preparation of the concept papers was volunteered as follows:

    A. Integrated Data Bases: General Rhodes and Admiral Freeman

    B. Priorities: Mr. Bill Bernstein and Mr. Denien

    C. Cost/benefit: OSD CALS Office with assistance from Mr. Charlie Bernstein and PGI staff.

- The Forum agreed it was desirable to continue to move ahead rapidly, and set the following tentative dates for the next meetings:

    Thursday, 17 December 1987

    Friday, 15 January 1987

    Thursday, 11 February 1987

--It was agreed also that these meetings should be convened at the Conference Room of The Pymatuning Group, Inc. in Arlington, VA.

APPENDIX D

CALS Senior Strategy Forum Meeting Summaries for:

17 December 1987

22 January 1988

10 February 1988

5 April 1988

SUMMARY OF KEY POINTS AND AGREED UPON ACTIONS
from the
17 DECEMBER 1987 MEETING OF THE SENIOR STRATEGY FORUM

1. The Forum took note of current activities within DOD directed towards emulating a Defense Science Board-like advisory organization for weapons systems manufacturing and acquisition. It was the sense of the Forum that a useful Defense Manufacturing Board structure would be more difficult to achieve than was the Defense Science Board, and _agreed_ that it is both appropriate and timely to advise DAS Robert McCormack regarding the Senior Strategy Forum as a potential means for achieving the objectives underlying the current ASD(P&L) interest in a Defense Manufacturing Board-type of activity.

2. The Forum took note of the current DARPA interest in identifying a suitable facility for its new Manufacturing Technology Initiative, which would be capable of fulfilling the following three broad purposes: training, concurrent design, and benefit analyses. Forum members indicated they would come forward with suggestions as might be appropriate.

3. The Forum received a briefing on a "Concept for a CALS Awareness Program" (see Attachment 1), and _agreed_ that an effort along the lines of the briefing is urgently needed over the next year or so. Discussion disclosed that the proposed schedule of actions is paced by the need for 1) an agreed CALS definition and priorities statement, and 2) some real and documentable "benefit" citations, and that some modest funding resources ($5 to 10K) would be required, particularly for the development of video materials. It was _agreed_ that:

   a. Priority should be given to developing an understandable definition of CALS, and bounds for its scope.

   b. Cost/benefit efforts should focus on the "bounded CALS" to facilitate analyses and assessment.

   c. Ample materials exist to serve as a basis for
      the awareness effort, and that the OSD CALS
      Office would assemble past statements,
      briefings, testimony, etc. to facilitate a
      working review for applicability, consistency,
      and completeness. These materials will be made
      available for review, work sessions, and
      drafting use in a designated "CALS Repository
      Room" in the offices of The Pymatuning Group,
      Inc.

   d. The OSD CALS Office will arrange appropriate
      funding support for the preparation of required
      video tapes.

4. The Forum took note that the NSIA/ICA cost/benefit
   study effort has now been reoriented to focus on the
   benefits side, with a schedule calling for an April
   seminar dealing with case studies assembled in the
   first quarter of 1988, and a report completed by
   June, 1988, for possible incorporation into the 1988
   CALS Report to Congress. The Forum agreed that:

   a. The NSIA study group should be provided with the
      agreed updated CALS definition and priorities
      concepts as soon as available from the Forum's
      drafting group and approved by the Forum, as a
      means to aid the benefits study.

   b. The Director, OSD CALS Office should arrange for
      the NSIA study group to brief the Forum
      regarding the progress of the benefits study
      not later than the February, 1988 meeting of the
      Forum (January meeting if possible).

5. The Forum noted the planning activity underway
   within the DOD Steering Group, and reviewed the
   matrix approach being used by that group to specify
   priority thrust areas for the CALS program. The
   Forum agreed that:

   a. The matrix approach being used by the Steering
      Group is useful.

   b. That three of the thrust areas identified by the
      Steering Group,--1) product data, 2) tech
      manuals, and 3) integrated support data base--
      are valid areas meriting priority attention.

    c.   A more complete briefing of the planning underway by the DOD Steering Group should be provided to the Forum at its January, 1988 meeting. This is to be arranged by the Director, OSD CALS Office.

6.   The Forum addressed the issue of CALS definitions and priorities, and considered the draft concept papers and viewpoints put forward. The differences of view, ranging from very narrow to very broad definitions for CALS were noted and discussed. The Forum _agreed_ that:

    a.   A drafting group comprising Messrs. C. Bernstein, L. Lemke, R. Freeman, and R. Shorey should meet to refine the definitions further, possibly using, as necessary, more precise "bounding" criteria, or "question and answer" approaches to arrive at what _is_ and what _isn't_ CALS.

    b.   January 14, 1988 will be set as a final work day for the drafting group to meet at the PGI suite, where the CALS Repository Room materials will be available for reference as needed.

    c.   The drafting group report will report its recommendations to the Forum at the 15 January 1988 meeting.

    d.   This effort is viewed as the immediate top priority matter for consideration by the Forum.

7.   The Forum took note that progress toward establishment of the industry PDES cooperative activity includes, 1) legal action underway to establish the cooperative as a separate legal entity, 2) issuance of the RFP for the host entity, with responses due back by early January, 1988, and 3) a projected PDES organizing board meeting by mid-January, 1988. The need for broader industry awareness of this PDES cooperative effort was discussed and the Forum _agreed_ that:

    a.   An appropriate DOD statement of support for the PDES cooperative concept would be helpful towards achieving broader corporate participation in the cooperative venture.

   b.   Dr. W. Truitt would provide a suitable draft
        statement to the DOD representative, who would
        undertake an appropriate supporting issuance by
        DOD.

8.   The Forum reviewed a draft concept paper on
     Contractor Maintained Integrated Data Bases, and
     noted that the key issues dealt with the management
     of such data bases, and not their technical design.
     The Forum agreed that Lt. Gen. Rhodes and Adm.
     Freeman should further perfect the paper, and
     provide recommendations at the January, 1988 Forum
     meeting on how best to integrate this issue into the
     DOD Steering Group planning activities, so as to
     gain adequate resources to carry this work forward.

9.   The Forum received an informal report of
     manufacturing and concurrent design activities
     ongoing within industry CAE groups toward the
     development of statements of integrated functional
     requirements which would apply within the CAD/CAE
     environment, and the need for this to interface
     appropriately with CALS efforts. It was pointed out
     that a report on these activities was due to be
     issued about mid-January, 1988. The Forum agreed
     that:

     a.   The Forum should be fully briefed as soon as
          possible after issuance of the report.

     b.   The potential for synergism between this
          activity, the CALS Air Force Unified Life Cycle
          Engineering Program, and concurrent design
          activities under DARPA's Manufacturing
          Technology Initiative should be reviewed and
          highlighted.

10. The following were confirmed:

     a.   The next meeting of the Forum will be Friday,
          15 January 1988 at the offices of The Pymatuning
          Group, Inc.(PGI), Arlington, VA.

     b.   The working session/drafting day will be
          Thursday, 14 January 1988 at PGI.

   c. The number one priority is CALS Definitions and
       Objectives. The number two priority is the CALS
       Awareness Program.

   d. All parties should send relevant materials for
       "Definition" or "Awareness" to PGI for placement
       into the CALS Repository Room for ready
       reference and use for the 14 January working
       session.

Attachment 1:

   "Concept for a CALS Awareness Program" -
   Dr. Wes Truitt

Draft 12-14-87

CONCEPT FOR A
CALS AWARENESS PROGRAM

AGENDA

o CALS AWARENESS PROGRAM OBJECTIVES

o STRAWMAN CALS AWARENESS PLAN

o STRAWMAN CALS AWARENESS BRIEFING CHARTS

AWARENESS PROGRAM OBJECTIVES

o TO COMMUNICATE CALS CONCEPT, GOALS, AND BENEFITS

o TO TOP LEVEL DOD, INDUSTRY, CONGRESSIONAL, AND OPINION LEADERS

o TO DEEPEN SUPPORT FOR CALS IN:

- DOD BUDGET

- SERVICES' PROGRAM CONTENT

- INDUSTRY ACTIVITIES

o TO OVERCOME MISCONCEPTIONS REGARDING CALS AND PROBLEMS THOSE HAVE CREATED

CALS MISCONCEPTIONS

o SEVERAL MISCONCEPTIONS RE: CALS HAVE ARISEN WHICH HAVE CREATED CONFUSION AND
   MISUNDERSTANDINGS:

o MISCONCEPTION EXAMPLES:

   - CALS AND ADP ARE THE SAME

   - CONGRESSIONAL PRESSURE ON DOD TO BETTER MANAGE ADP IS CRITICISM OF CALS
      IMPLEMENTATION

   - CALS HAS LOGISTICS RELEVANCY ONLY

   - CALS HAS HIGH INVESTMENT COST (E.G. $45 B BY 2000)

o CALS AWARENESS PROGRAM WILL CLARIFY AND CORRECT THESE AND OTHER
   MISCONCEPTIONS

STRAWMAN

CALS AWARENESS PLAN

o TARGET AUDIENCES

o SCHEDULE OF BRIEFINGS

o MATERIALS NEEDED

o TASK ASSIGNMENTS

o RESOURCES

CALS SUPPORT IN U.S. GOVERNMENT

o DOD/OSD

- DEPSECDEF TAFT

- UNDERSECDEF DR. ROBERT COSTELLO

o USAF

- AFSC (BOLLING)

- AFSC/ASD (WPAFB)

- AF MATERIAL LAB (WPAFB)

o USN

- NAVSUPPORT

o NBS

o CONGRESS

- SAC DEFENSE SUBCOMMITTEE

ROBERT BYRD (W. VA.)

ERNEST HOLLINGS (S.C.)

JAY KIMMITT, STAFF

- SASC

STROM THURMOND (S.C.)

JEFF BINGAMAN ("M.)

- HAC, DEFENSE SUBCOMMITTEE

DAVID KIL'AN, STAFF

TARGET AUDIENCES

o DOD/OSD TOP LEVELS

o SERVICES' TOP LEVELS

- MILITARY

- CIVILIAN

o KEY CONGRESSIONAL MEMBERS AND STAFFS

- HOUSE AND SENATE ARMED SERVICES

- HOUSE AND SENATE APPROPRIATIONS

o INDUSTRY TOP LEVELS

o POLICY ANALYSIS INSTITUTIONS (THINK TANKS)

o DEFENSE JOURNALISTS

o WAR COLLEGES' CURRICULUM PLANNERS

COMMUNICATIONS MATERIALS NEEDED

o BASIC "AWARENESS" BRIEFING

- MODULARIZED FOR USE WITH SELECTED AUDIENCES

- DESK TOP AND VU-GRAPH

o POINT PAPERS ON SELECTED TOPICS AND ISSUES

- COMPANION TO BRIEFING OR STAND ALONE

o FOLD OUT POCKET MINI BRIEFING

o VIDEO TAPE OF CALS PROGRAM EXAMPLES

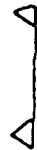- SUCCESS STORIES IN DESIGN/MANUFACTURING

SCHEDULE

1987 - 88:   D   J   F   M   A   M   J   J   A   S   O   N   D

APPROVE CONCEPT PAPER

DEVELOP BRIEFING

REVIEW BRIEFING

SCHEDULE PRESENTATIONS

DOD/OSD

SERVICES

CONGRESS

INDUSTRY
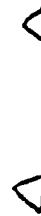
WAR COLLEGES

JOURNALISTS

UPDATE BRIEFING

BRIEFING UPDATE
CONGRESS

AWARENESS PROGRAM RESOURCES

o PREPARATION OF AWARENESS PROGRAM AND ITS EXECUTION WILL REQUIRE RESOURCES

- DATA AND INFORMATION

- PEOPLE TO PREPARE AND GIVE BRIEFINGS/PAPERS

- DOLLAR RESOURCES

o TEAM APPROACH IS NEEDED TO MEET AND KEEP SCHEDULE

o ASSETS WHICH CAN BE USED IN AWARENESS PROGRAM

- OSD CALS OFFICE TO OVERSEE ENTIRE PROGRAM

- FORUM TO ASSIST WITH COORDINATION OF ACTIVITY

- INDIVIDUAL FORUM MEMBERS CAN HELP PREPARE AND GIVE BRIEFINGS

- OSD LEGISLATIVE LIAISON OFFICE COULD PARTICIPATE

- SERVICES' L&L OFFICES COULD PARTICIPATE

- NSIA ACTIVITIES COULD PARTICIPATE

o OPEN ISSUES

- WHAT WILL BE FUNDING SOURCES (E.G. VIDEO TAPES, ETC.)

- IS OSD CALS OFFICE STAFFED TO SUPPORT PROGRAM

- ARE RIGHT PEOPLE AVAILABLE FOR BRIEFINGS TO CONGRESS, INDUSTRY, JOURNALISTS

- WHAT ROLE SHOULD FORUM PLAY IN THE AWARENESS PROGRAM

TASK ASSIGNMENTS

TASK	ASSIGNMENT
° DEVELOP BASIC BRIEFING	
° DEVELOP WHITE PAPERS	
° DEVELOP MATERIAL FOR VIDEO PRESENTATIONS	
° MAKE VIDEO	
° CONGRESSIONAL BRIEFING	
– SELECTION OF AUDIENCES	
– GIVING BRIEFINGS	
° MILITARY SERVICES	
– SELECTION OF AUDIENCES	
– GIVING BRIEFINGS	
° TOP LEVEL INDUSTRY	
– SELECTION OF AUDIENCES	
– GIVING BRIEFINGS	
° JOURNALISTS	
– SELECTION OF AUDIENCES	
– GIVING BRIEFINGS	

STRAWMAN

CALS AWARENESS PROGRAM BRIEFING CHARTS

o DEFINITIONS

o STATUS OF ACTIVITIES

o ORGANIZATIONAL STRUCTURE

o FUNDING

o COST/BENEFITS

CALS DEFINITION

COMPUTER-AIDED ACQUISITION AND LOGISTICS SUPPORT

"THE DOD CALS PROGRAM IS A STRATEGY DESIGNED TO INSTITUTE WITHIN THE DEPARTMENT AND ITS INDUSTRIAL SUPPORT STRUCTURE AN INTEGRATED 'SYSTEM OF SYSTEMS' THAT CAN CREATE, TRANSMIT, AND USE TECHNICAL INFORMATION IN DIGITAL FORM TO DESIGN, MANUFACTURE, AND SUPPORT DEFENSE WEAPON SYSTEMS AND EQUIPMENT. THIS CONCEPT APPLIES RAPIDLY ADVANCING COMMUNICATIONS AND COMPUTER TECHNOLOGY TO THE ACQUISITION AND LOGISTIC SUPPORT OF MAJOR WEAPON SYSTEMS AND INFORMATION SYSTEMS DEVELOPED BY THE DEFENSE INDUSTRY FOR DOD."

- Office of the Assistant SecDef Procurement and Logistics

Quoted in Report to the Committee on Appropriations

CALS RELATIONSHIP TO ADP

○ THERE HAS BEEN A RELATIONSHIP BETWEEN ADP AND CALS SINCE CALS' BEGINNING

○ CALS USES AUTOMATIC DATA PROCESSING EQUIPMENT AND TECHNOLOGY EXTENSIVELY

<u>BUT</u>

CALS AND ADP ARE SEPARATE BUT RELATED PROGRAMS

○ FOR FY-86 DOD'S ADP BUDGET TO PROCURE, LEASE, AND OPERATE ADP EQUIPMENT WAS $7.5 BILLION

<u>VS.</u>

CALS BUDGET OF $143 MILLION FOR ALL SERVICES' PROGRAMS

○ CONGRESS HAS ENCOURAGED DOD TO AUTOMATE EFFICIENTLY, ESPECIALLY LOGISTICS SYSTEMS

- IDA STUDY IN 1985 URGED AUTOMATION, ESPECIALLY TECH PUBLICATIONS

- DOD HAS A PLAN TO IMPLEMENT AUTOMATION

- CONGRESS WANTS 50% CUT IN PAPER USE FOR TECHNICAL PUBLICATIONS AND DOCUMENTS

STATUS OF CALS ACTIVITIES

o SEPTEMBER, 1985 DEPSECDEF LAUNCHED CALS INITIATIVE

o OCTOBER, 1986 UNDERSEC FOR ACQUISITION ESTABLISHED OSD CALS POLICY OFFICE TO

   - GUIDE DEVELOPMENT AND IMPLEMENTATION OF DATA EXCHANGE STANDARDS

   - ADVOCATE THEIR INTEGRATION INTO SERVICES SYSTEMS AND ACQUISITION PROGRAMS

   - PROVIDE A SINGLE DOD FOCUS TO INDUSTRY

o APRIL, 1987 PUBLISHED CALS CORE STANDARDS PHASE I REVIEW DRAFT, PLUS HANDBOOK

o SPRING, 1987 JOINT LOGISTICS COMMANDERS (JLC) DESIGNATED LEAD WEAPON SYSTEMS
   TO DEVELOP AND TEST CALS

   - ATF   - LHX   - V22

   - ATA   - SSN-21

o 60 DOD PROGRAMS HAVE BEEN IDENTIFIED IN 5 AREAS:

   - CORE SPECIFICATIONS

   - DEMONSTRATION AND VALIDATION

   - INFRASTRUCTURE MODERNIZATION

   - SERVICE LOGISTIC SYSTEM INTEGRATION

   - WEAPON SYSTEM APPLICATION

CALS IMPLEMENTATION PLAN

o PHASE I

- IN 1988 DOD BEGINS WRITING REQUIREMENTS FOR DATA INTERCHANGE INTO CONTRACTS

- BY 1990, DEMONSTRATION ON 5 KEY WEAPON SYSTEMS:

    ATA   LHX   V-22

    ATF   SSN-21

- PROVIDE COMMON DIGITAL INTERFACE BETWEEN DOD CONTRACTORS AND DOD'S TECH DATA REPOSITORIES AND AUTOMATED TECH MANUAL PUBLISHING SYSTEMS

- ELECTRONIC TRANSFER OF DRAWINGS AND TECH MANUALS PLUS ON-LINE ACCESS BY DOD TO CONTRACTOR ILS DATA BASES

o PHASE II

- BEGINNING AFTER 1990

- USE OF PRODUCT DATA EXCHANGE SPECIFICATIONS (PDES)

- SYSTEM OF INTERACTIVE, SHARED DATA BASES ACCESSIBLE BY DOD, PRIMES, AND SUBS

o ULTIMATE GOAL BY YEAR 2000 IS AUTOMATED, PAPERLESS ENVIRONMENT

DOD CALS MANAGEMENT OFFICE

RUSSELL R. SHOREY, DIRECTOR

DR. MICHAEL MC GRATH

JOSEPH ARCIERI

BRUCE LEPISTO

DONALD HALL

CALS ORGANIZATIONAL STRUCTURE

o DOD CALS STEERING GROUP

- OSD RUSSELL SHOREY, CHAIRMAN   - DLA THOMAS KNAPP

- ARMY ERIC ORSINI   - DCA HERBERT GOERTZEL

- NAVY GERALD HOFFMAN   - DARPA WILLIAM BANDY

- AIR FORCE LLOYD MOSEMANN   - SDIO COL. JAMES GRAHAM

            - NBS HELEN WOOD

o INDUSTRY CALS TASK FORCE (NSIA)

- DR. RICHARD WEBSTER, CHAIRMAN

o CALS SENIOR STRATEGY FORUM BEGAN OCTOBER, 1987

- HIGH LEVEL INDUSTRY/GOVERNMENT EXPERTS PROVIDING OSD WITH SUGGESTIONS

o PDES COOPERATIVE PROJECT ORGANIZATION BEGAN JUNE, 1987

- TO DEVELOP PRODUCT DATA EXCHANGE SPECIFICATIONS OVER 3 YEAR EFFORT

CALS SENIOR STRATEGY FORUM

o INDUSTRY AD HOC GROUP RECOMMENDED IT IN EARLY 1987

o OSD RETAINED PYMATUNING GROUP, INC. TO PROVIDE ORGANIZING INITIATIVE AND ADMINISTRATIVE SUPPORT

o 29 OCTOBER 1987 FIRST MEETING

   - BRIEFED ON INTEGRATED DIAGNOSTICS, DOD CALS PROGRAM, PDES COOPERATIVE STATUS, AND NSIA CALS ACTIVITIES

o 10 NOVEMBER 1987 SECOND MEETING

   - DEVELOPED ORGANIZATIONAL STRUCTURE OF THE FORUM

   - IDENTIFIED ISSUES FOR FORUM ATTENTION

   - ASSIGNED INDIVIDUALS TO PREPARE DRAFT PAPERS

   - SCHEDULED MONTHLY MEETINGS FOR NEAR FUTURE

o ATTENDEES ARE GOVERNMENT AND INDUSTRY INDIVIDUALS HAVING EXPERIENCE IN CALS ACTIVITIES; NO PERMANENT MEMBERSHIP

o VALUE OF THE FORUM TO INDUSTRY

   - SMOOTHER IMPLEMENTATION OF REQUIRED CALS ACTIVITIES AND PROGRAMS

   - PROVIDES HIGH LEVEL INPUT OF ENTRY INTO GOVERNMENT TO RAISE ISSUES

   - OFFERS OPPORTUNITY TO SHAPE CALS POLICIES AND PROGRAMS LOGICALLY AND BENEFICIALLY

o VALUE OF FORUM TO GOVERNMENT

   - INDUSTRY OFFERS DIFFERENT/OTHER PERSPECTIVES

   - PROVIDES MECHANISM TO GAIN FEEDBACK ON EFFECTIVENESS OF PROGRAM

   - CAN SERVE AS A VEHICLE FOR MARKETING CALS TO CONGRESS AND INDUSTRY

   - OFFER IDEAS FOR IMPROVING QUALITY AND REDUCING COST OF WEAPON SYSTEMS

PRODUCT DATA EXCHANGE SPECIFICATION

° PDES IS CALS' CORNERSTONE

WEAPON SYSTEM DESIGN = PRODUCT DEFINITION

WEAPON SYSTEM MANUFACTURE = PRODUCT DELIVERY

WEAPON SYSTEM FIELD SUPPORT = PRODUCT SUPPORT

° PDES IS THE PROCESS OF EVOLVING ALL INFORMATION NECESSARY TO DEFINE THE PRODUCT

- ENGINEERING   - LSA

- TOOLING   - QA

- PLANNING   - PRODUCIBILITY

- MATERIEL

° PDES COOPERATIVE FORMATION EFFORT RESULTED FROM AD HOC INDUSTRY GROUP INITIATIVE IN EARLY 1987

- FORMAL EFFORT TO DEVELOP COOP BEGAN JUNE, 1987

- 11 COMPANIES HAVE BEEN ACTIVE AND EXPRESS SERIOUS INTEREST IN JOINING THE COOP WHEN FORMED

PDES COOPERATIVE MEMBERSHIP COMMITMENTS

ALL MEMBERS

- 3 YEAR COMMITMENT

- PAY DUES APPROPRIATE TO MEMBERSHIP CLASS

- PROVIDE TECHNICAL MANPOWER APPROPRIATE TO EACH CLASS

- ALL MEMBERS HAVE THE SAME TOTAL FINANCIAL COMMITMENT APPLICABLE TO THEIR MEMBERSHIP CLASS REGARDLESS OF WHEN THEY JOIN, PLUS ADDITIONAL ONE-TIME FEE OF $10,000/MONTH BEYOND JUNE, 1988

CLASSES

CLASS	ANNUAL DUES	TECHNICAL MAN YEARS PER YEAR
I	$100,000	2 *
II	50,000	1 *
III	25,000	-0-
Government Associate	TO BE DETERMINED BY THE EXECUTIVE BOARD	

* $150,000 MAY BE SUBSTITUTED FOR EACH MAN YEAR, SUBJECT TO APPROVAL BY THE GENERAL MANAGER

47

CALS FUNDING

o CALS FUNDING AS REPORTED BY DOD/OSD

CALS FUNDING BY COMPONENT FOR FISCAL YEARS 1986 - 1989

DoD Component	ACTUAL SPENDING FY 1986	1987 PLANNED FUNDING ($ M)		
		FY 1987	FY 1988	FY 1989
OSD	*	13.6	13.0	12.9
Army	26.8	11.2	29.2	44.3
Navy	55.5	68.4	99.9	106.1
Air Force	57.8	41.8	41.4	40.9
DLA	3.3	3.4	7.9	14.0
TOTALS	143.4	138.4	191.4	218.2

* OSD appropriation account not established until 1987.

o ACTUAL DOD/OSD FUNDING OF CALS

$13.6 MILLION REQUEST FOR FY-1988

SERVICE/DLA CALS PROJECTS

CATEGORY	ARMY	NAVY	AIR FORCE	DLA
REPOSITORY AUTOMATION	DSREDS TD/CMS	EDMICS CATIS NPODS	EDCARS	EDMICS
PRINTING AND PUBLISHING SYSTEMS	EMPS APPS	NAPS ADMAPS	ATOS	—
AUTHORING SYSTEMS	—	NTIPS AIM	ITDS	SMDP
DATA BASE MANAGEMENT AND INFORMATION PROCESSING SYSTEMS	CALS ARCHITECTURE DEVELOPMENT FVPDS ADVANCE	CALSA	UDB	DGIS PPROV AII VODISK DORTEX
COMMUNICATIONS ACCESS AND DATA DISTRIBUTION	MIDS	SPLICE TLRN	—	MEDALS
PRESENTATION DEVICES AND MAINTENANCE AIDS	MEIDS	PEAM CBAT	CMAS	—
AUTOMATED PROCUREMENT AND PARTS CONTROL SYSTEMS	IPS	APADE PED	—	MPCASS MEP GFB
CAD/CAM AND RELATED TOOLS	—	IDSS CAFIT SHARP CAD/ACQ-2 FEEDS RAMP	MLCAD	—
SYSTEM INTEGRATION AND ARCHITECTURE	CALS TEST BED	NSTIS	IDS IMIS GMAP IISS AITI WSCD	CADESS
LEAD WEAPON SYSTEMS DEMONSTRATIONS	LHX DEMO	SSN-21 DEMO V-22 DEMO ATA DEMO	ATF DEMO	—

301-0002

CALS FUNDING

° JOINT LOGISTICS COMMANDERS DESIGNATED CALS LEAD PROGRAMS FY-1988 FUNDING HISTORY

	88 REQUEST	HASC	SASC	CONF	HAC	SAC	CONF
ATF 63230F	536.8	480.0	536.8	508.0 536.0	480.0		
V-22 64262N	465.7	465.7	475.7	470.6	465.7		
LHX 64223A	267.2	10.0	170.0	170.0	10.0		
SSN-21 (adv. pro.)	257.6	257.6	-	257.6	257.6		
SSN-21 64561N (development)	213.2	213.2	213.2	210.0	213.2		
ATA				Full Funding *			

* Per Defense Daily, November 16, 1987

VALUE OF CALS NEEDS TO BE DETERMINED

o ESSENTIAL FOR JUSTIFICATION OF CALS IN PPBS

o FOR <u>COSTS</u> NEED:

- PROPER ACCOUNTING OF CALS REAL INVESTMENT COSTS

- COST OF IMPLEMENTATION OF CALS CORE DOCUMENT (PROBABLY $50M)

- COST OF SECONDARY ("ADD-ON") CALS INVESTMENT IN EACH PROCUREMENT (PROBABLY $250M)

- COST OF UPGRADING PRESENT PROCEDURES ON PROGRAMS TO CALS STANDARDS

- GOOD COST MODELS AND ACTUAL EXAMPLES ON PROGRAMS

o FOR <u>BENEFITS</u> NEED:

- PROPER ACCOUNTING OF DOLLARS SAVED ON PROGRAMS, NET OF INVESTMENT

- TO QUANTIFY "AREAS OF CALS COST BENEFITS"

- GOOD BENEFIT MODEL AND ACTUAL EXAMPLES ON PROGRAMS

o WORK IN PROGRESS ON COST/BENEFIT ANALYSIS

- OSD CALS OFFICE TO TAKE LEAD ROLE

- NSIA EFFORT IN PROGRESS, BASED ON INTERNAL COMPANY EFFORTS

o ANALYSIS OF CALS COSTS AND BENEFITS SHOULD BE CENTERED ON DOD <u>PROGRAMS</u>

- IN INDUSTRY, ALL COSTS ARE ULTIMATELY CHARGED TO PROGRAMS

- SERVICES ACCOUNT FOR COSTS VIA PROGRAM ELEMENT

- THE BULK OF CALS FUNDING IS ON SERVICES' PROGRAMS

51

AREAS OF CALS COST BENEFITS

o AREAS OF GOVERNMENT COST WHERE CALS CAN FAVORABLY IMPACT

1. INFORMATION

- GATHERING   - PROCESSING
- ACQUIRING   - PRINTING
- STORING   - NOT USING
- MAINTAINING

-- INDUSTRY HAS THIS INFORMATION STORED AND UPDATED ELECTRONICALLY

2. PROGRAM IMPACT

- TIME FROM DESIGN TO MANUFACTURING TO INITIAL PRODUCTION

- TIME TO REPROVISION SPARE PARTS IN THE FIELD

- TIME TO INVESTIGATE AND REPAIR EQUIPMENT DAMAGED IN THE FILED

-- CONTRACTOR PROVIDED ELECTRONIC DATA BASE WILL IMPROVE PRODUCTIVITY

3. PERSONNEL

- NUMBERS OF ARMED SERVICE PERSONNEL COMMITTED TO ILS TASKS

- NUMBERS OF DOD/MILITARY PERSONNEL ASSIGNED TO ADP ILS TASKS

-- CONTRACTORS WILL HAVE AUTOMATED ILS INFORMATION AND PRCVIDE IT TO DOD

4. EQUIPMENT

- ADP EQUIPMENT NEEDED BY DOD FOR ILS INFORMATION WILL DECLINE

- PRINTED SUPPORT MANUALS WILL BE OBSOLETE

-- CONTRACTOR FURNISHED DATA WILL REDUCE DOD'S EQUIPMENT NEEDS

<u>SUMMARY OF KEY POINTS AND AGREED UPON ACTIONS</u>
<u>FROM THE</u>
<u>15 JANUARY 1988 MEETING OF THE SENIOR STRATEGY FORUM</u>

1. The Forum received the briefing by Mr. Lawrence
    "Buzz" Milan, Executive Director, Product Support,
    NAVAIR, on innovative approaches used by NAVAIR to
    finance CALS improvements within its operational,
    intermediate, and depot support levels. It was
    noted that the synergy deriving from closer
    coordination among the different support levels is
    of significant benefit, and that it is the emphasis
    on CALS which is forcing this closer coordination.
    It was also noted that funding for CALS-based
    improvements are not presented as a single program
    line, but rather that various funding means,
    appropriate to the support level and nature of the
    improvement, are being used. These cover a spectrum
    which ranges from including improvement cost needs
    in the procurement funding for the weapons system,
    as may be agreed by the Weapons System Program
    Manager, to the use of capital asset reserves
    maintained through the imposition of surcharges
    relating to depot-level operations. It was also
    noted that these financing approaches have resulted
    in NAVAIR making more progress in the pace of
    modernization than was expected. One current
    concern, however, is that as declining budgets force
    the competing of work among the depots, individual
    depots may eliminate surcharging and so defer
    modernization.

    a. It was the sense of the Forum that this briefing
        was highly useful and informative, and served to
        enhance the understanding by industry of ongoing
        CALS activity in DOD.

    b. The Forum <u>agreed</u> that similar briefings from
        other Services should be scheduled for
        presentation at future meetings of the Forum.

2. The Forum reviewed, in detail, the draft briefing
    prepared by the drafting group for use in the CALS
    Awareness Program. Presentation of the draft
    briefing by Adm. Freeman incorporated discussion of
    the CALS definition and priorities, together with

related matters considered by the drafting group in arriving at its recommendations as incorporated in the draft briefing. The Forum recommended many specific revisions to numerous charts of the briefing, and noted areas requiring further development. These were recorded by PGI. The Forum agreed that:

a. The briefing, as revised and amplified, could serve as the basis for a tailored briefing to a variety of audiences in order to achieve a better and broader understanding of CALS.

b. Adm. Freemen should undertake to perfect the briefing, using the agreed upon revisions as recorded by PGI; updated CALS funding information, to be developed in conjunction with the OSD CALS Office; incorporation of industry benefits information to be developed with the assistance of Bill Bernstein; and, incorporation of DOD benefits information, to be developed in conjunction with the DOD CALS Office.

c. The "perfected" briefing should, to the extent possible, be provided to the Forum by its February meeting.

3. The Forum received the paper on Contractor-maintained Data Bases, prepared by Lt. Gen. Rhodes and Adm. Freeman, and noted the recommendation that DOD select a source to perform research and study as outlined in the attachment to the paper. It was the sense of the Forum that the accomplishment of such research and study be recommended to DOD, and this was noted by the OSD representatives.

4. The Forum received a briefing on Integration of R&M (Reliability and Maintainability) into Automated Design Processes. The briefing was given by Ms. Naomi McAfee of Westinghouse Electric Company, with support by Lt. Col. Larry Griffin, Weapons Support Improvement Group, DOD(P&L). The briefing focused on results of a 1987 Summer Study looking at electronics and mechanical design processes. The Forum noted that a significant problem results from the fact that under current procurement practices, many of the reliability analyses are identified as deliverables (Data Item Deliverables--DIDs) and so

are treated as a report often submitted long after production has commenced, rather than as a determiner of design prior to production. The Forum also noted that the study, which will continue into 1988, is developing a sample Statement of Work to incorporate into RFPs which was oriented toward the validation of processes, rather than toward data item deliverables.

The Forum, in discussing industry viewpoints, noted that industry sees DOD as primary beneficiary of R&M, and that IR&D funding is still directed more toward products than toward processes, and expressed the sense that consideration of ways by which IR&D funding might be brought to bear upon CALS needs should be addressed by the Forum at a future meeting.

5. The Forum received a status update on the DOD Steering Group planning activity, and noted the anticipated incremental CALS Core Specification release schedules through 1990 as they relate to the three primary thrust areas of Product Definition Data, Integrated Support Data Bases, and Technical Manuals. It was also noted that the specification of work for FY 1988 for the National Bureau of Stand- ls has been finalized, and that it focuses upon conformance testing needs. At this time, it is expected that the Air Force will be designated as the lead Service regarding the planning and integration of validation testing.

6. The Forum received a status update on the Industry PDES Cooperative Project, which highlighted the fact that, based on advice of legal counsel, the Cooperative would be established as a corporation, and that actions to satisfy Department of Justice requirements were currently underway. It was noted that the selection committee anticipated completion of review of RFP proposal recommendation for selection of host contractor for the Cooperative by 12 February 1988.

7. The Forum was appraised of current status of DOD actions toward establishment of a Defense Manufacturing Board (DMB). In particular, it was noted that Mr. McCormack and Dr. Costello have submitted a request to OMB for approval of a formal

Board under the provisions of the Federal Advisory Committee Act. It was further noted that characteristically, such a Board would have a broad charter, and could be expected to propose tasks or receive tasks from the Secretary of Defense in areas related to manufacturing. It was suggested that if the DMB is established, consideration needed to be given to the relationship of the Forum to the DMB. Dr. Davis indicated she would be meeting with Mr. McCormack during the next week, and would comment upon the excellence of this Forum and its output, and the availability of the Forum as a flexible complementary means for assisting on manufacturing matters. In this connection, the Forum noted that it's future makeup might better encompass broader industry representation.

8. The Forum noted the report by Russ Shorey advising that the Government PDES User's Group has been chartered, and will be chaired by Mr. Gary Denman, Director of the Laboratory Complex at Wright Patterson AFB. It is expected that NASA, Commerce, and Energy Departments will participate with DOD in the User's Group. It is expected that the User's Group will be the principal government interface with the Industry PDES Cooperative Project.

9. The schedule for the next meeting of the Forum was set for <u>Wednesday, 10 February 1988</u> at PGI. Consideration will be given to expansion of activity beyond CALS and additional industry diversity for the Forum.

SUMMARY OF KEY POINTS AND AGREED UPON ACTIONS
FROM THE
10 FEBRUARY 1988 MEETING OF THE SENIOR STRATEGY FORUM

1. The Forum was briefed by Col. Gene Tattini, USAF/AFSC, concerning the tech order (TO) modernization plan being undertaken by the Command. It was noted that the plan embraced ATOS (Automated Technical Order System), ITDS (Integrated Technical Data System), and IMIS (Improved Management Information Systems). The main task underway is to see how ATOS, ITDS, and IMIS related to one another, and what steps are needed to integrate them into the whole. It was noted that the Air Force is not yet equal to industry in adoption and use, there being an "air gap" regarding the use of paper systems by USAF groups. The volume of tech orders was highlighted through the revelation that each C-131 carried one ton (2,000#) of Tech Orders and that 30% of each technician's time is devoted to search. At present there are 150,000 Tech Orders, comprising approximately 20 million pages of information. The cost to change a Tech Order is approximately $1,000 per page and about 2.3 million pages are changed annually. The current plan is to phase in a shiftover from paper to digital operations by 1995, though there will be some paper regardless. An automated system has been translated into a projected savings of $135 million/year with a life-cycle cost savings of $583 million per weapon system.

    a. Mr. Mosemann noted that the effort now underway involves getting Secretary Carlucci's blessing of the paperless Tech Order objectives for the 1990s set earlier by Secretary Weinberger.

    b. The Forum could be helpful in articulating a meaningful capitalization system for the type of investment required by contractors to incorporate such a system.

    c.   General Rhodes observed that management of the data base would be, in his judgment, more critical than the technology involved in the assembly and operation. He suggested the need for an audit trail and transition record as a means of obtaining assurances of what was done and how it was done.

2.   The Forum reviewed the point paper developed by Charles Bernstein concerning the scope and objectives of CALS. Extensive discussion followed regarding viewing CALS as a "strategy", and CALS as a "program." It was noted that the earlier popular definition of CALS became "Computer-aided Acquisition and Logistics Support", while a more accurate depiction of CALS might be that of "Comprehensive Automated Acquisition and Logistic Support." In either case, CALS has always been a DOD program entity in the sense of the Defense Space Program, the C^3 Program, the Tactical Intelligence Program or the Stealth Program. In this larger sense, CALS has most of the traditional features of a program including a strategy, an evolving set of plans, a mission or purpose/s, scope, goals, etc. A discussion of these features could serve to make CALS more understandable and hence serve as a catalyst to expedite the stated objectives and budgetary support to CALS implementation.

It was suggested that a version of a CALS "strategy" might be to ensure an effective transition and utilization of digital, technical information for a variety of critical functions spanning the entire weapons system/platform acquisition life cycle from R&D, through testing to operations, maintenance, spare parts procurement and ending with obsolescence.

3.   Dr. McGrath briefed regarding the 29 January Boston meeting and also on a meeting held at Grumman concerning 1988 CALS priorities. A major CALS workshop and exposition is being planned for October, 1988, and two new working groups have been established regarding work on the integrated data base and the program and education area.

4. Dr. Davis spoke to the Forum regarding the status of
    Defense Manufacturing Board developments stemming
    from the 20 January 1988 OMB approval action
    granting creation of the Board.   It was agreed that
    Dr. Davis proceed to set up a meeting between Forum
    members and the OSD/DMB "ASAP" (within a month).
    It was suggested that Forum members call in their
    ideas and suggestions to PGI regarding other
    audiences for meetings with Forum members.

    It was suggested that the Forum undertake a
    "phraseology-metrics" type workshop in late April or
    early May to which representative Congressional
    staff, CBO personnel and representatives of the
    financial community, manufacturing technology
    centers, etc. might be invited.   Suggestions for
    speakers to be solicited were urged.   Topics might
    include productivity, cost/benefits, cost/funding
    strategies, etc.

5. Admiral Freeman updated the Forum on the revised
    draft briefing prepared for use in the CALS
    Awareness Program. It was noted that it had been
    tried out on OSD/Congress/University level personnel
    with success.   It was agreed that further refinement
    of the language used in several of the charts should
    be undertaken, and that "examples" might better be
    used than "categories" where possible.   Further
    modification of the charts to be used would be
    carried out prior to the next meeting of the Forum.

6. Dr. McGrath outlined the content and purpose of the
    forthcoming June, 1988 Report to the Congress and
    solicited suggestions from the Forum.   The key
    element regarding preparation of the Report was seen
    as an accurate display of the impacts CALS can/will
    have on the overall area.   To avoid any confusion
    regarding the concerns of the House Armed Services
    Committee concerning the "interplay" of ADP and
    CALS, and an effort underway calling for preparation
    of an ADP Logistics Plan (of which CALS will be a
    part), and the Forum agreed it would be better to
    have a separate CALS plan (statement) if only to
    avoid further confusion of its so-called
    relationship to ADP.   A number of essentials were
    identified regarding consideration for formatting
    the Report:

a. There should be continuity between this Report and that of earlier years.

b. If included within the ADP Logistics effort, the integrity and independence of CALS should be recognized and maintained.

c. Each and every change incorporated into the draft Report should be tied down to some element within the Report to the Congress.

d. Based on previous year's examples, the Forum felt that the proposed organization of the Report was adequate.

e. The Forum believed it would be helpful to highlight the fact that industry is putting more time and effort into the usage of CALS.

f. It was believed that "collegial infrastructure" was adequate and appropriate regarding a hierarchy of programs such as CALS. CALS has its own personality.

On the question of the Report to the Congress, it was felt that "continuity is rewarded more than creativity" and that alternatives should be underscored, more than course corrections, through the Report.

7. Mr. Shorey noted that a dialogue had been initiated with ASD(R&T) Robert Duncan concerning concurrent design, etc. and raised the suggestion that some initial point papers be floated to Forum members focusing on team efforts for rapid iterative design items, pulling all factors such as R&M, into the initial phase.

It was suggested that there is a need for a speaker on this aspect, i.e., product assurance, and that it would be helpful to know DOD's desires (i.e., DDR&E).

AGREED UPON ACTIONS

1. Forum members are to forward their suggestions to PGI for topics and items for further meetings with Messrs. McCormack and Costello. When arranged, such meetings are to include one or more members of the Forum. Topics could be broader than the issues surrounding CALS.

2. Forum members are to forward their suggestions of types of benefits derivative of CALS for preparation as charts similar to those surfaced by Mr. Lemke during the 10 February 1988 Forum meeting. These suggested additions would be assembled by Dr. Truitt.

3. PGI is to work with Dr. Truitt in "smoothing out" the content and style of the CALS Awareness briefing charts.

4. The date of the next Forum meeting was set for 5 April 1988. Topics to be considered would include the idea of a two-day workshop sponsored by the Forum to focus on such issues as the financing and benefits of CALS, concurrent design, etc., and other items to be suggested.

5. It was agreed that a two-to-three page draft executive summary of the Report to the Congress would be provided by Dr. McGrath to be circulated to Forum members by 26 February 1988. In addition, a point paper on concurrent design would also be prepared by Mr. Shorey and circulated to the Forum membership.

6. Forum members agreed to send their suggestions for new members in the group to PGI, and that the next meeting of the Forum would include an updating discussion of the PDES Report.

7. Upon their preparation for mailing, PGI will send out copies of the charts used by Col. Tattini and by Mr. Lemke, along with the updated presentation prepared by Admiral Freeman.

SUMMARY OF KEY POINTS AND AGREED UPON ACTIONS

FROM THE

5 APRIL 1988 MEETING OF THE SENIOR STRATEGY FORUM

1. The Forum received a briefing by Mr. Karl Bastress
    of the Army Laboratory Command, and Mr. Marty Meth
    of OSD, on the management and review process for
    Independent Research and Development (IR&D).
    Discussion centered on how to get CALS-type projects
    allowed under IR&D. It was noted that AMC now
    tracks more than 300 IR&D profit centers; that
    "production tools" category is an exception from
    allowability under IR&D, but is fully allowable
    under appropriate overhead categories; that
    "development tools" used in R&D are allowable under
    IR&D; and that non-R&D "productivity improvers" (as
    some CALS-type investments might be construed to be)
    are generally allowed under overhead, rather than
    IR&D. The Forum members highlighted that there
    appears to be uneven application of rulings and
    evaluations regarding IR&D among the DOD Service
    components; that the real issue is the ceilings
    imposed upon IR&D overall, noting that overall,
    companies are currently overspending IR&D ceilings
    by some 40%; and that one of the problems is that
    "support services" tend to get lower evaluations by
    DOD accounting auditors, than do "products."

    a. There was <u>no</u> general agreement that a clarifying
        policy for CALS-type things under IR&D would be
        useful.

    b. There was <u>was</u> general agreement that achieving
        consistency among the Services regarding IR&D
        within a single contractor's activities was most
        important, and that DOD efforts should be
        focused to this end.

2. The Forum received a briefing from Frank Doherty
    and Tim Woodford, of DOD, regarding the Innovative
    Manufacturing Incentive Program (IMIP). It was
    noted that the IMIP process encompasses three
    phases: in Phase I the government funds a "factory
    analysis"; in Phase II, the government funds
    "high-risk tasks"; in Phase III the contractor funds

implementation. At present, some 107 contractors are involved in IMIP business arrangements; some $407 million has been committed by DOD, and some $1.8 billion by industry towards IMIP project efforts, with most being under Air Force sponsorship. Savings to date from IMIP arrangement programs are proving to be about 4:1 in a prime contractor context, and about 6:1 in a subcontractor context. The Forum noted that there is a great need to simplify the administration of the program, and to reduce the time required to implement IMIP arrangements, that is, negotiating the "visible" savings and corresponding profit incentives. It was further noted that the program is still highly dependent upon the ability to find a government entity (DOD laboratory, agency, or command) which is willing to fund a particular effort under an IMIP arrangement, and us the program seems to be highly personality driven; and that, at present, there is no focal point for a CALS project sponsor.

a. The Forum highlighted that software efforts are not precluded under IMIP, and that it might be useful to look toward using a CALS effort as an example of such an effort under IMIP.

b. The Forum agreed that IMIP should be considered as an additional funding approach for CALS implementations.

3. Russ Shorey and Ruth Davis provided Forum members with an update of activity which has recently been initiated within OSD relating to Concurrent Design. Mr. Shorey pointed out that there has been, under various names such as "design integration", "concurrent engineering", etc., a history of individual efforts which are now being brought together on a fast-track basis with DASD McCormack as the lead person, to try to have Concurrent Design techniques become an integral aspect of the acquisition of systems for DOD. Dr. Davis highlighted that over the past two months, both the R&D and the acquisition elements of OSD have come to recognize that the whole way design is done has now changed due to the new technologies available, and that this can have significant impact on the quality and reliability, costs and timeliness of products and systems for Defense. She pointed out that this

activity had the direct support of Mr. McCormack, Mr. Duncan, and Mr. Costello, and that Mr. Shorey has been designated to serve as their point man in getting the effort moving. The Institute for Defense Analyses (IDA) has been designated to provide technical support to the effort, and the strategic direction will be provided by and industry forum to be chaired by Larry Lemke. PGI will provide management support for the effort. Robert Winner of IDA spoke briefly to the IDA role of conducting workshops for the Concurrent Design effort.

4. Larry Lemke spoke to the importance of getting government, industry, and users all talking the same kind of language, and of the role of concurrency in design in helping this to come about. He cited the example of his cwn company, McDonnell Aircraft Co., which in facing this issue, completely reassembled its engineering staffs to take advantage of the new technology for engineering and design. Forum discussion centered upon the current tendency to optimize designs at the subsystem levels, with the result being suboptimized total systems; the current tendency to ask for data, without focusing upon decisions; the perception that what government says does not comport to what it does (i.e., procurement practices and evaluation criteria don't follow the stated importances); that this Concurrent Design effort can serve as a vehicle to help bridge such a gap; that the CALS Senior Strategy Forum might serve as the basis for the new Forum at the risk of losing sight of CALS as a primary thrust area; and that the current wave of interest in Concurrent Design can be viewed as a high-leverage opportunity providing continuity to bridge potential Administration changes.

5. The Forum received an update from Michael McGrath regarding a draft CALS implementation policy letter which is expected to be signed by the Deputy Secretary of Defense in the near future. Among other things, this policy provides that the Services incorporate CALS standards for all systems entering full-scale development in 1990. Mr. McGrath also provided a draft of the Executive Summary of the CALS Report to the Congress, and requested feedback comments from Forum members as soon as possible.

The draft Report is expected to be completed in about two weeks.

6. Wes Truitt reported on the activities of the CALS Benefits Working Group which met during March. He indicated that because of fragmentary materials and no way of blending discrete company inputs, the group had mixed results. Ultimately, it focused upon a matrix and structure for categorizing benefits, which Mr. McGrath reported has now been presented to the NSIA Industry Steering Committee's Cost/Benefit group, which liked it, and is now assembling benefit data and examples under that structure.

7. The Forum received a briefing by Edwin Webber on means for extending CALS awareness within relevant elements of the Congress.

8. Robert Denien reported on the status of the Industry PDES cooperative effort. He indicated that two responses to the technical request for proposal were received, and that the South Carolina Research Authority was selected for award of contract. However, the PDES Cooperative has not yet been able to incorporate, as only five companies thus far have legally committed to joining the new corporation (six is the minimum required). The award, therefore, is contingent upon actual incorporation of PDES, Inc. He indicated further that a new Executive Committee has been elected, but that the new Executive Board Chairman had not yet convened a meeting of the new Board.

   a. Though some concern was expressed by Forum members that PDES must move forward for the CALS effort, it was generally agreed that the matter of incorporating the PDES cooperative project was an industry matter, and not a matter to be addressed by the Forum.

9. No time was set for the next meeting of the Forum. This will be advised when scheduled.

APPENDIX E

Summary of Key Matters from the 5 May and 7 June 1988

meetings of the DoD Industrial Concurrent Design Strategy Forum

SUMMARY OF KEY MATTERS
from the
5 MAY AND 7 JUNE 1988 MEETINGS
of the
DOD INDUSTRIAL CONCURRENT DESIGN STRATEGY FORUM

1. The Forum acknowledged the 6 April 1988 memorandum on "Implementation of Concurrent Design" from the Under Secretary of Defense for Acquisition, and the 26 April 1988 memorandum from the ADASD(Systems) tasking The Pymatuning Group, Inc. (PGI) to establish the Forum, and requesting Mr. Larry Lemke of McDonnell Aircraft Company to serve as chairman. The charter and schedule put forward with the invitations to participate in the Forum were accepted de facto and the Forum agreed to broaden industrial participation to selected additional invitees for future Forum sessions.

2. The Forum received briefings relevant to ongoing DoD Concurrent Design activities, including planned workshop activities under the cognizance of the Institute for Defense Analyses, and agreed that the Forum would focus on acquisition policy changes which could advance quality engineering efforts.

3. The Forum identified some 31 matters which were perceived as inhibiting extension of Concurrent Design. Of these, six topical areas were deemed most important for immediate attention. These include:

    a. Current R&D policy, and DoD focus, is on devices rather than processes.

    b. The DoD system to define the real requirements appears inappropriate, and fails to capture real requirements in the contract. There is a need to determine how best to write Concurrent   Design process needs into DoD contracts.

    c. The profile of development funding does not match the funding needs for up-front Concurrent Design.

    d. There is a lack of consistency of posture by top authorities within DoD with respect to policies favorable to extension of Concurrent Design practices.

e.   There is a lack of incentives for industry to take the risks of internal company realignments which facilitate meaningful Concurrent Design approaches. Under current DoD acquisitions, industry receives no reward for incorporating Concurrent Design processes which add value to the product.

f.   DoD requests for proposal and contracting timing, as well as phasing schedules, severely constrain the ability to confirm up-front design needs.   At present, design must virtually be frozen by or shortly after award of contract. Immediate costs and schedules appear to dominate acquisition considerations.

4.   Various Forum members volunteered the preparation of white papers which would more fully develop issues relating to each of these topical areas. The preliminary results of this work are incorporated into a separate report providing industrial insights on the DoD Concurrent Engineering Program.